DOCUMENT RESUME

ED 465 682 SO 033 883

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TITLE The Impact of a Study of 3 School Environments and Teacher/Student Perceptions.
PUB DATE 2002-02-15
NOTE 34p.; Paper presented at the Annual Meeting of the Southwest Educational Research Association (25th, Austin, TX, February 14-16, 2002).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS College School Cooperation; *Educational Environment; Educational Research; Elementary Education; *Elementary Schools; Facility Case Studies; Higher Education; *Physical Environment; *Student Attitudes; *Teacher Attitudes
IDENTIFIERS *Brain Based Learning; Educational Issues; Learning Environments

ABSTRACT

This paper highlights the results of a recent study collaboratively conducted by a university and three schools within two school districts. The purpose of the investigation was to prove a connection between quality teaching and learning and quality physical environment. The three person research team included: (1) a practicing professional architect/professional of educational administration interested in school design; (2) a university professor from a college of education whose main focus was teacher instruction and principal leadership; and (3) a doctoral student majoring in counseling psychology. The team examined three elementary schools for the connection that exists among the physical environments, brain-based learning (BBL) tenets, and the impact on learning. Each selected school site noted variables that influence a teacher's attitude (use of instructional strategies, job satisfaction, and retention in the profession), student attention, and student enthusiasm for learning. Two school sites were located in impoverished sections of a midsize town; the third site was an older school serving a diverse population of students from low to middle income homes. Preliminary findings show a connection between indirect and/or direct application of BBL affecting teacher and student perceptions of learning and teaching. (Contains 15 tables.) (BT)

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The Impact of A Study of 3 School Environments and Teacher/Student Perceptions

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SERA, February 15, 2002

Recent advancements in neuroscience have opened a window into how our brains process learning. Our understanding of the mind in the classroom allows adaptations of how and what we teach. Yet, little study has been performed on "where" we teach. Neuroscientists as Marian Diamond and Candace Pert, popular authors and teachers as Martha Kaufeldt, Geofery and Renata Caine and Eric Jenson refer to the environment for teaching as needing consideration and enrichment. These educators have defined enrichment in terms of decoration. Some concerns have been expressed for quality of light and atmosphere, but none have examined the form of the space, the infrastructure nor the relationship of the physical environment to the tenets of brain- based learning.

Our proposed program for this year's ASCD conference will hi-light the results of a recent study collaboratively conducted by a university and 3 schools in 2 school districts. The purpose of the investigation was to prove a connection between quality teaching and learning and quality physical environment. With the understanding that a large number of variables exist that impact education, it was the belief of the researchers as well as the participants that this study would serve to connect existing research and belief.

Our research team included: 1. A practicing professional architect /professor of educational administration, whose main interest is in school design and the effects of design on student learning and teacher attitude; 2. A university professor from a college of education whose main interest is in teacher instruction and principal leadership; and 3. A doctoral student majoring in counseling psychology. The team examined three elementary schools for the connection that exists between the physical environments, brain-based learning [BBL] tenets and the impact on learning.

Carol Venolia in her Healing Environments (1988) notes that disharmony in a place can be a source of physical and mental stress. Martha Kaufeldt (1999) notes that "brain compatible learning environments are places where students' curiosities are piqued and potential anxiety, frustration or confusion is diminished." Our study sought to identify the individual and corporate places where children are learning and examine the relationship of these physical spaces to the education process. The study proceeded through three phases. Initially, we examined 3 selected school sites using a criteria

referenced evaluation instrument developed by Dr. Harold Hawkins and Dr. Ed Lilly for the Council of Educational Facility Planners, International. In the second phase of the study, interviews were conducted with the principals at these facilities as well as selected teachers to determine their awareness of BBL tenets and the physical environment. Lastly, we observed teaching and student behavior within the selected schools. Our intent was to prove a connection between quality teaching and learning and quality physical environment. We know that a large number of variables exist that impact education.

Each selected school site had a significant number of variables that are often noted to influence a teachers' attitude, use of instructional strategies, job satisfaction, and retention in the profession as well as student attention and enthusiasm for learning (Delpit, 1995; Pellicer & Anderson, 1995; Jensen, 1998; Sousa, 2001; and Donaldson, 2001). Two selected school sites were located in the most impoverished sections of a midsized town, the third site was an older school serving a diverse population of students from low to middle income homes. Student and teacher success at each of the 3 sites faced the challenges that many impoverished and depressed communities face: limited resources.

Preliminary findings show a connection between indirect and/or direct application of BBL affecting teacher and student perceptions of learning and teaching.

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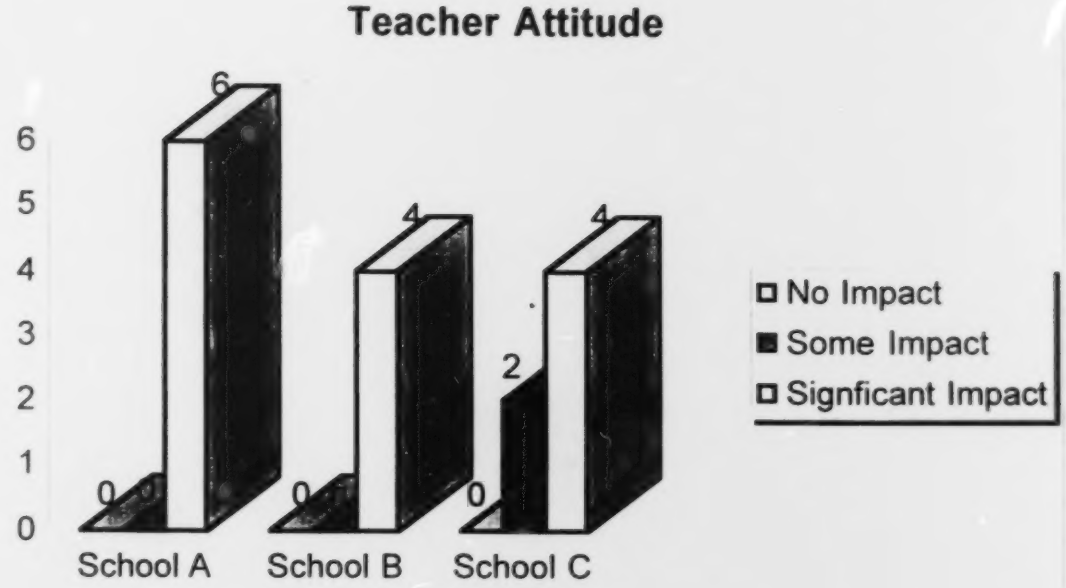

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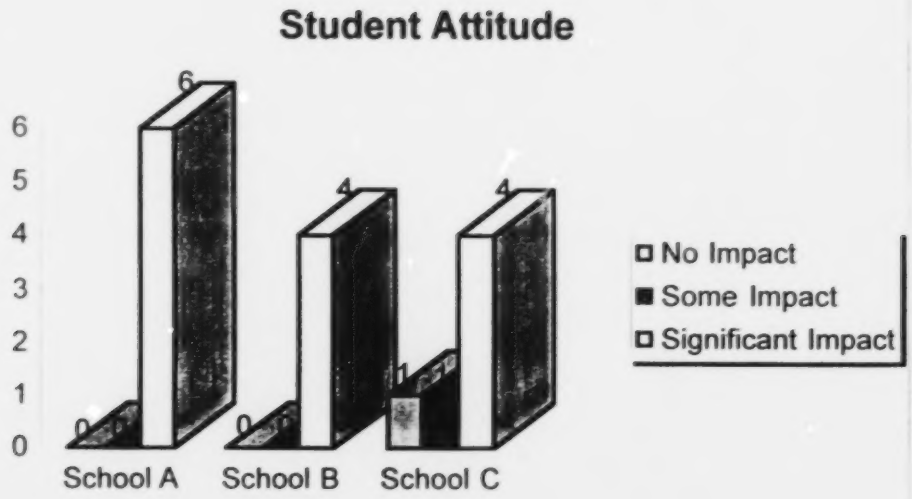

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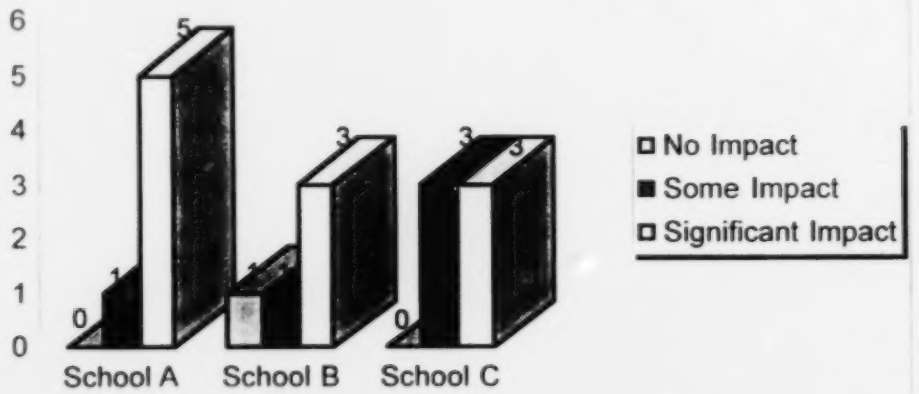
Student Learning



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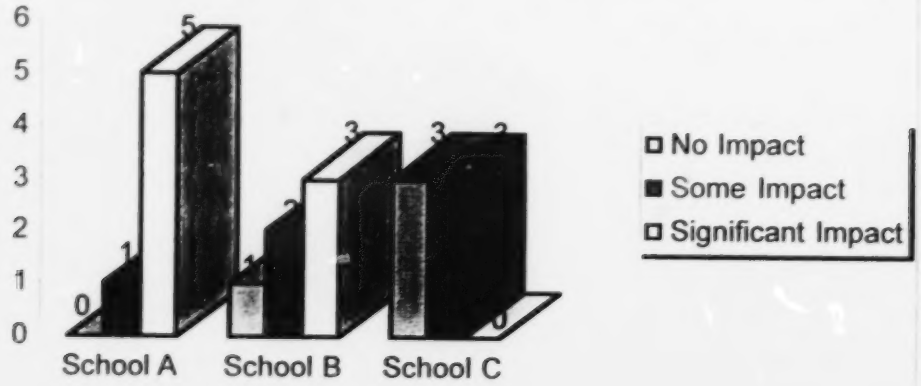
Instruction Delivery



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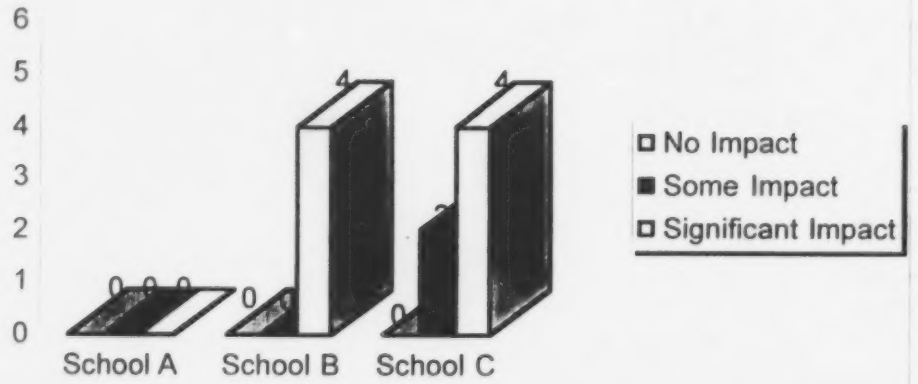
BBL Utilization



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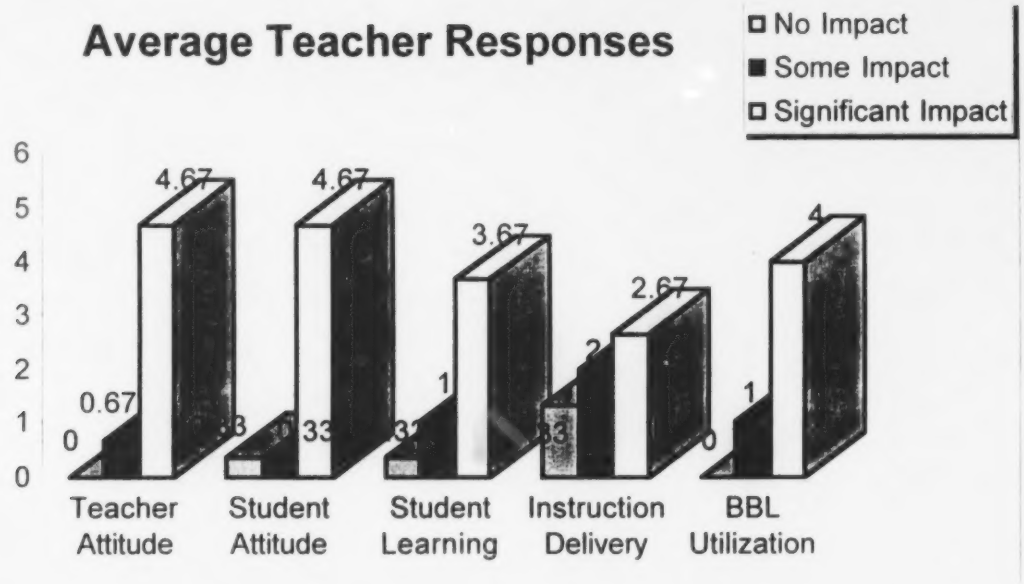

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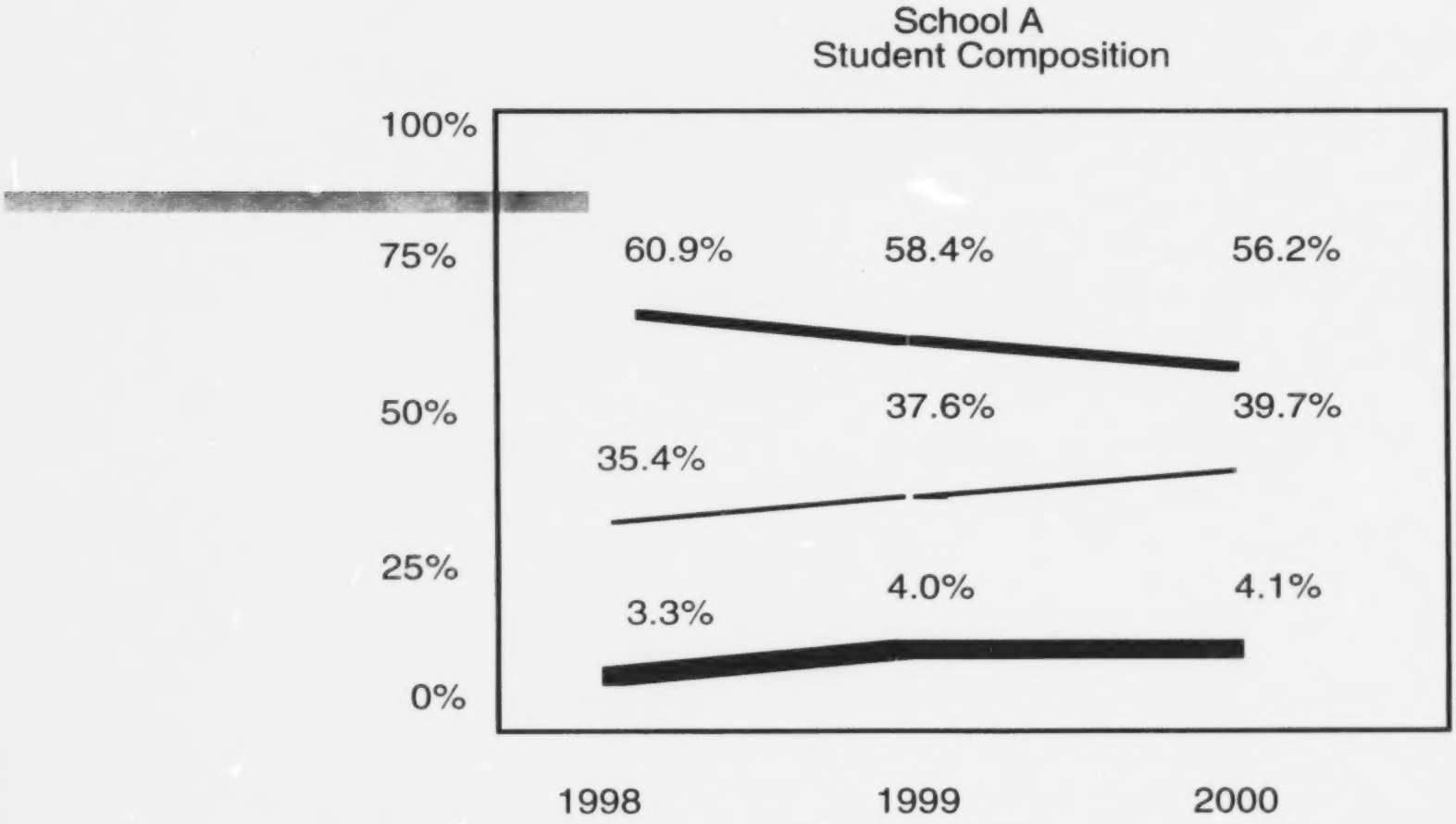

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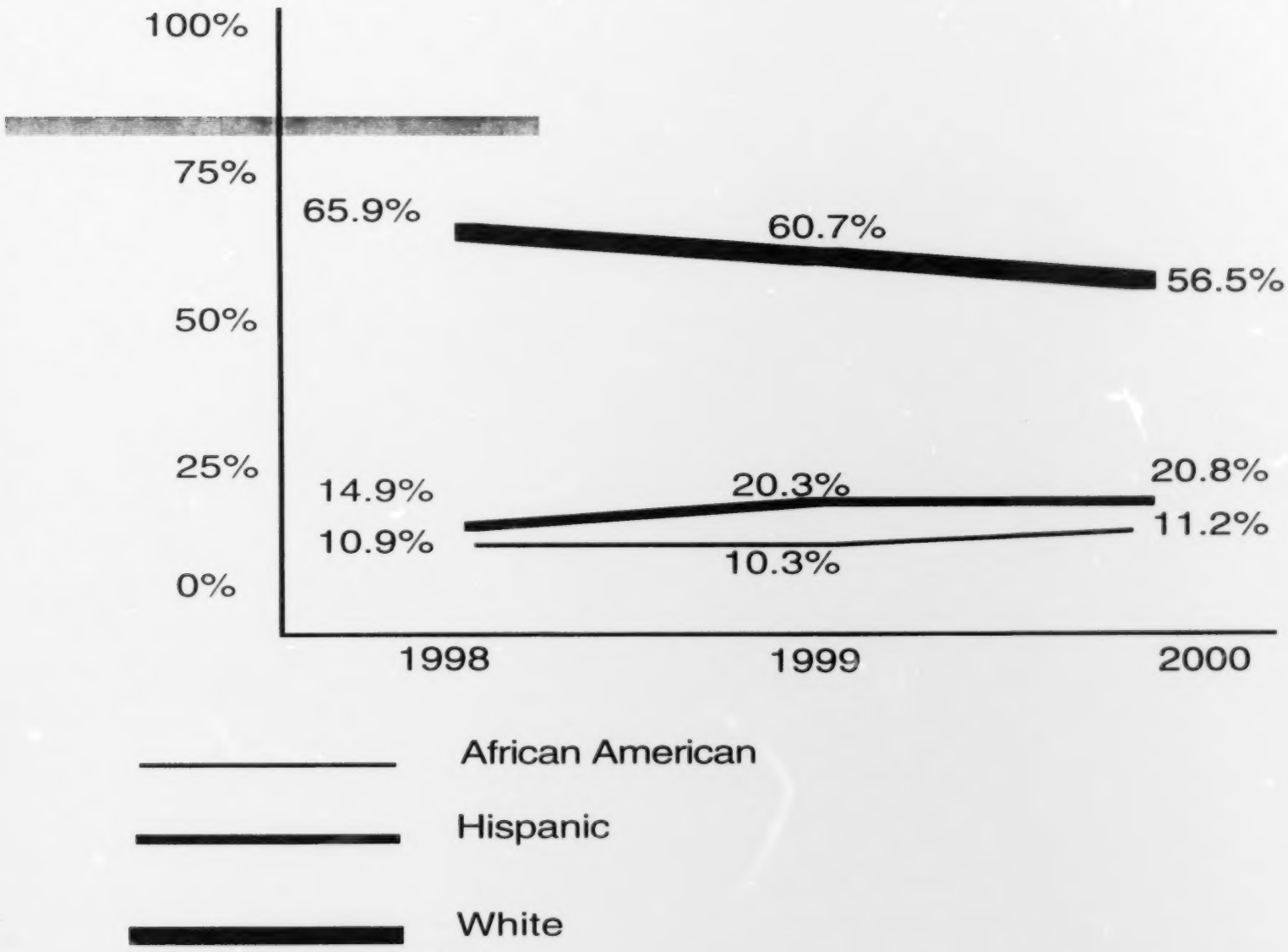
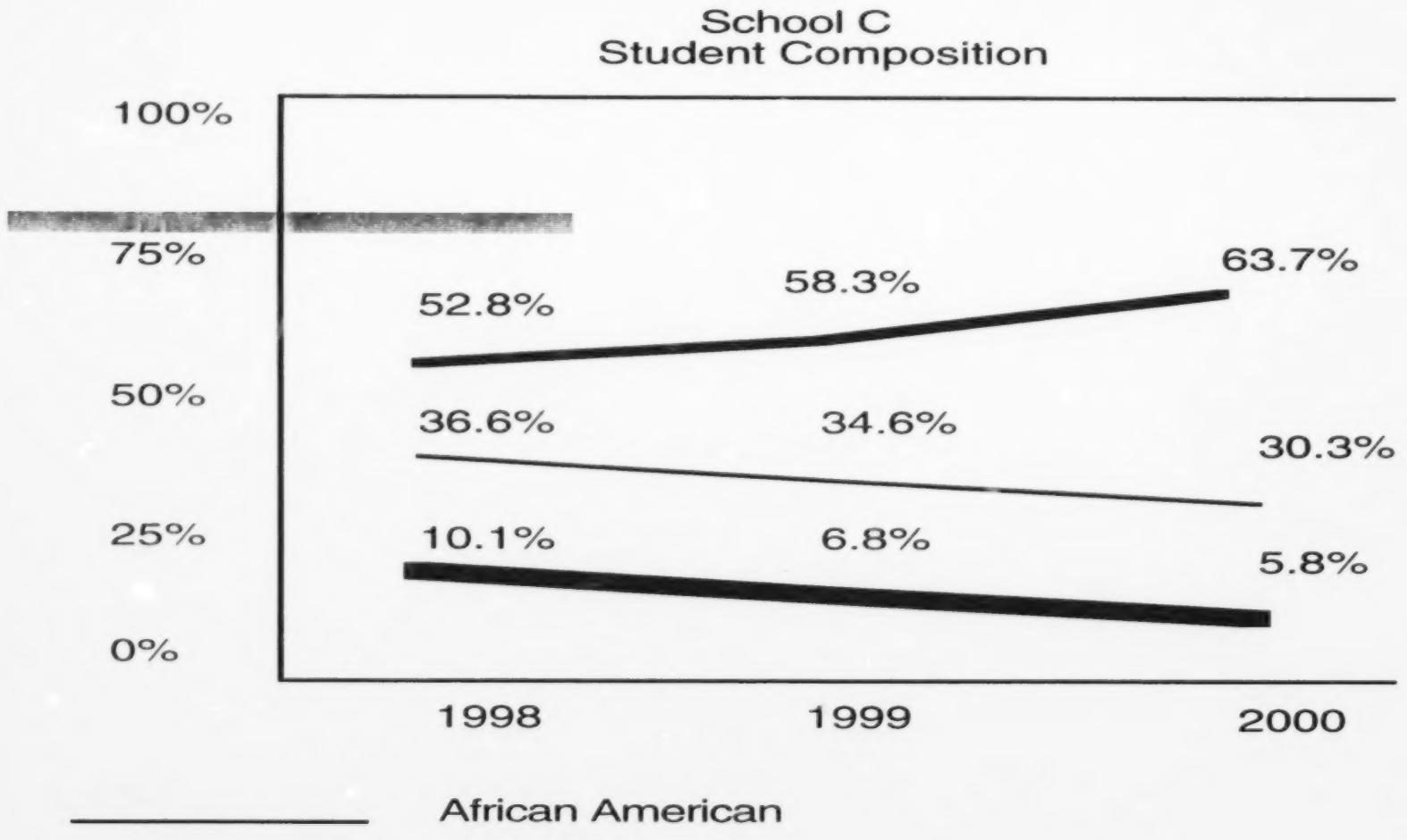
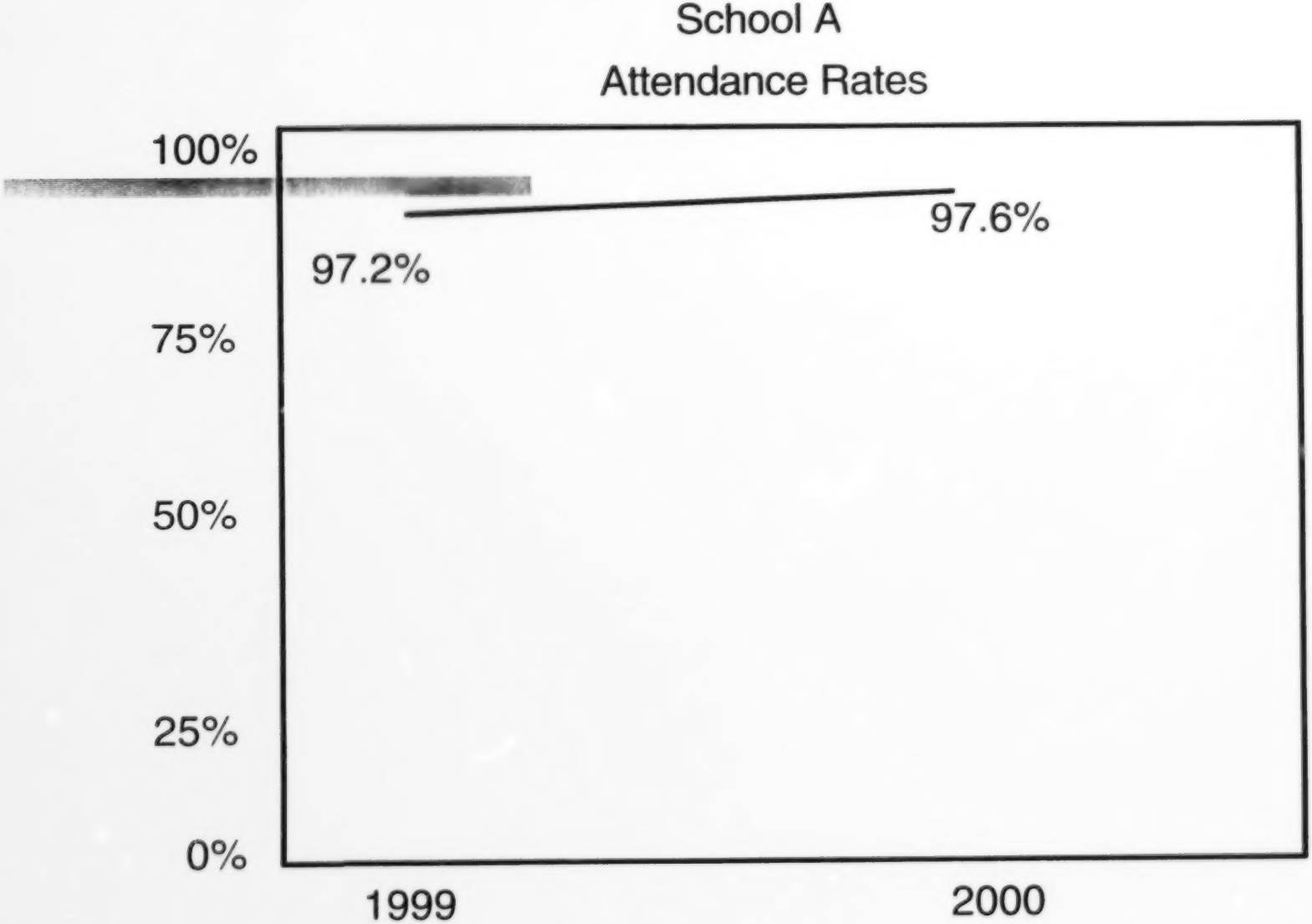
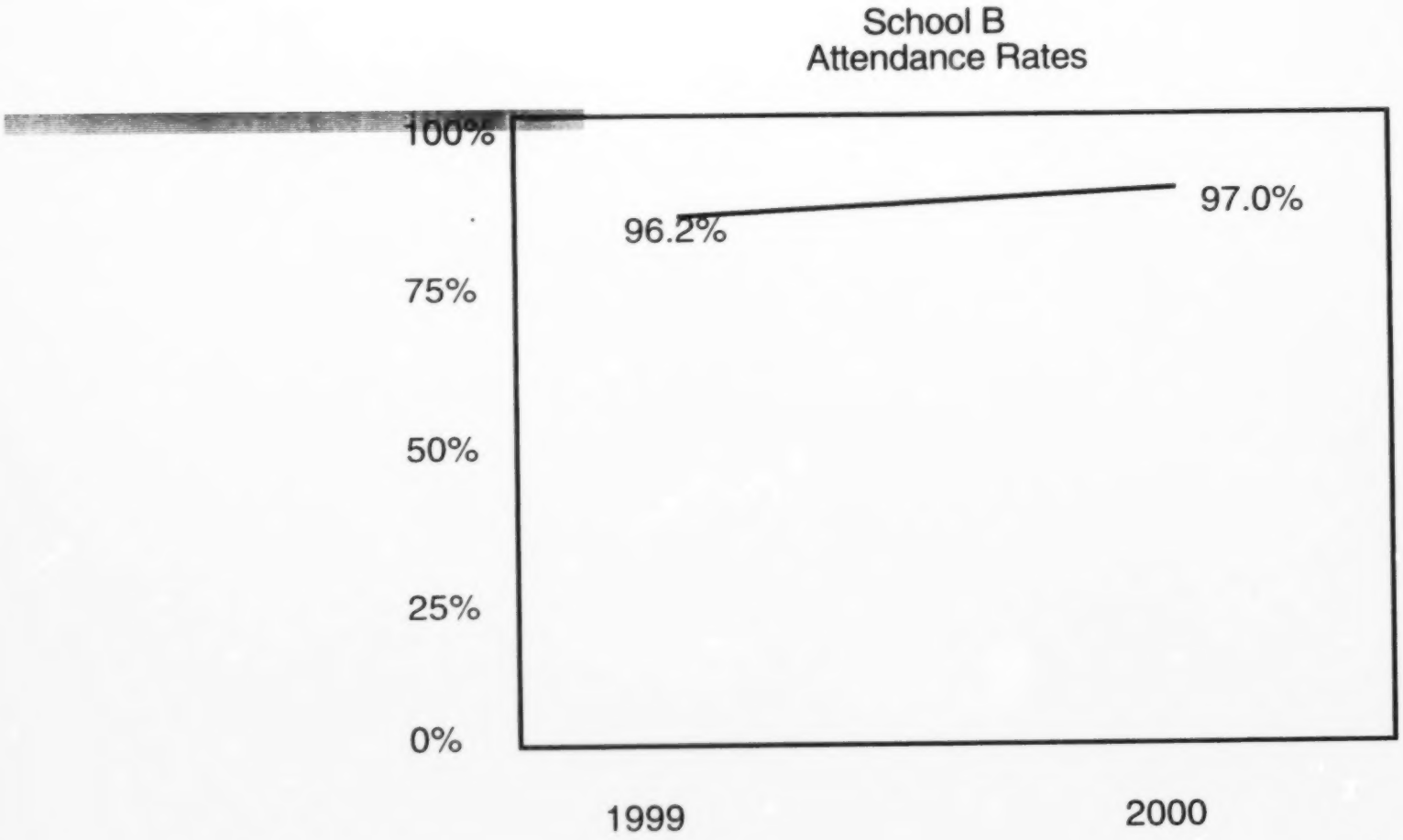
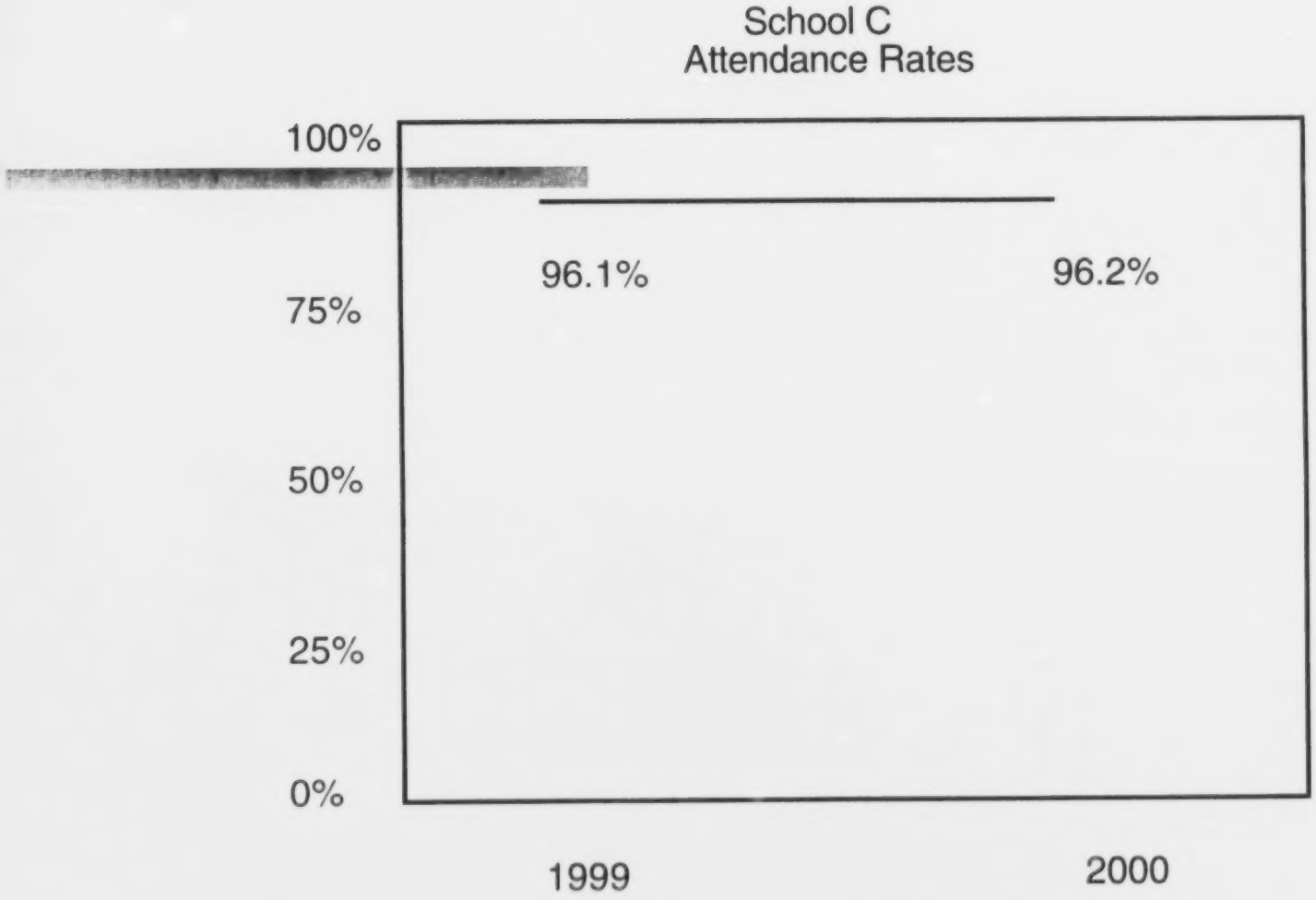
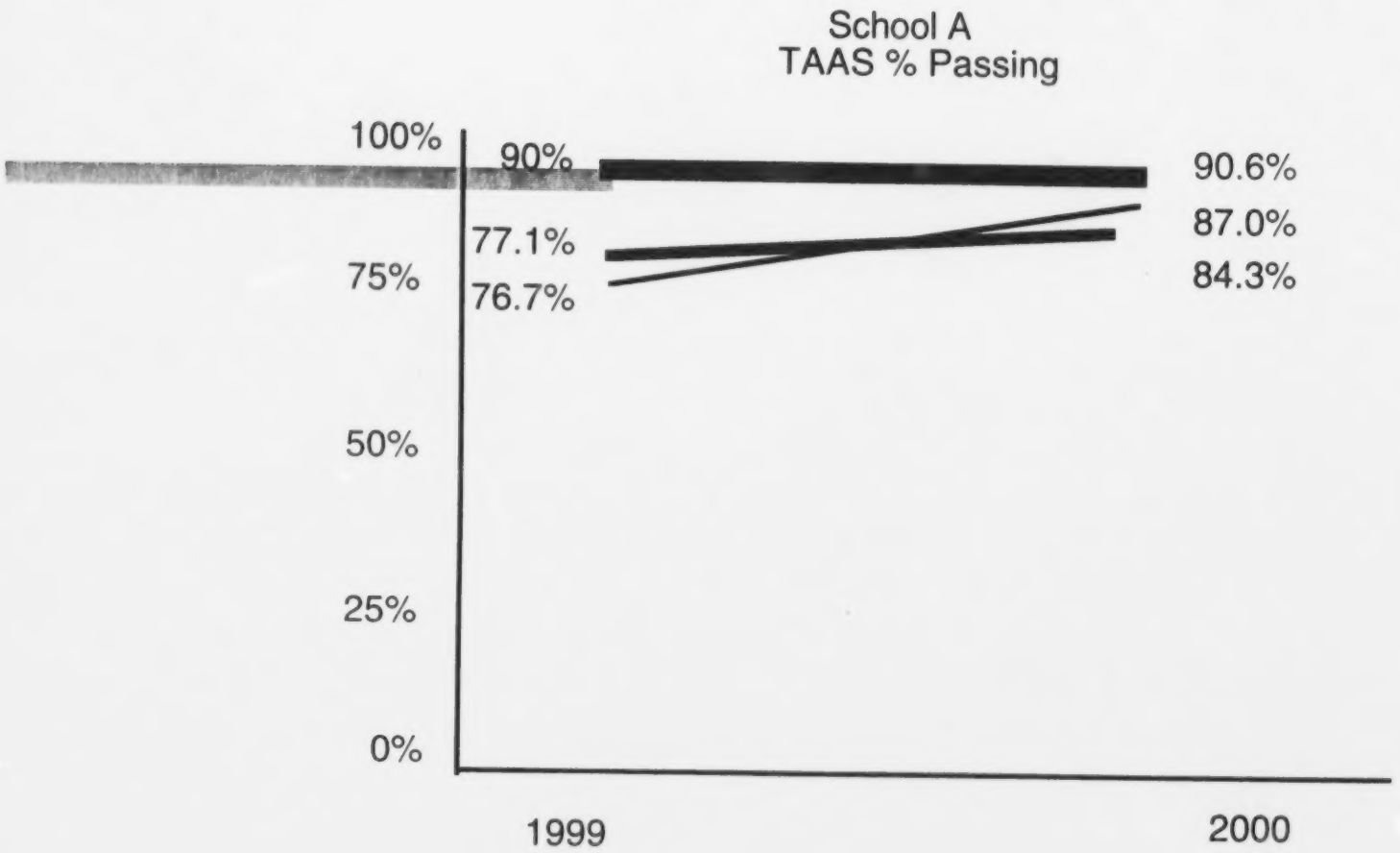

School B
Student Composition
100%
75%
50%
25%
0%
65.9%
60.7%
56.5%
14.9%
20.3%
20.8%
10.9%
10.3%
11.2%
1998
1999
2000
African American
Hispanic
White

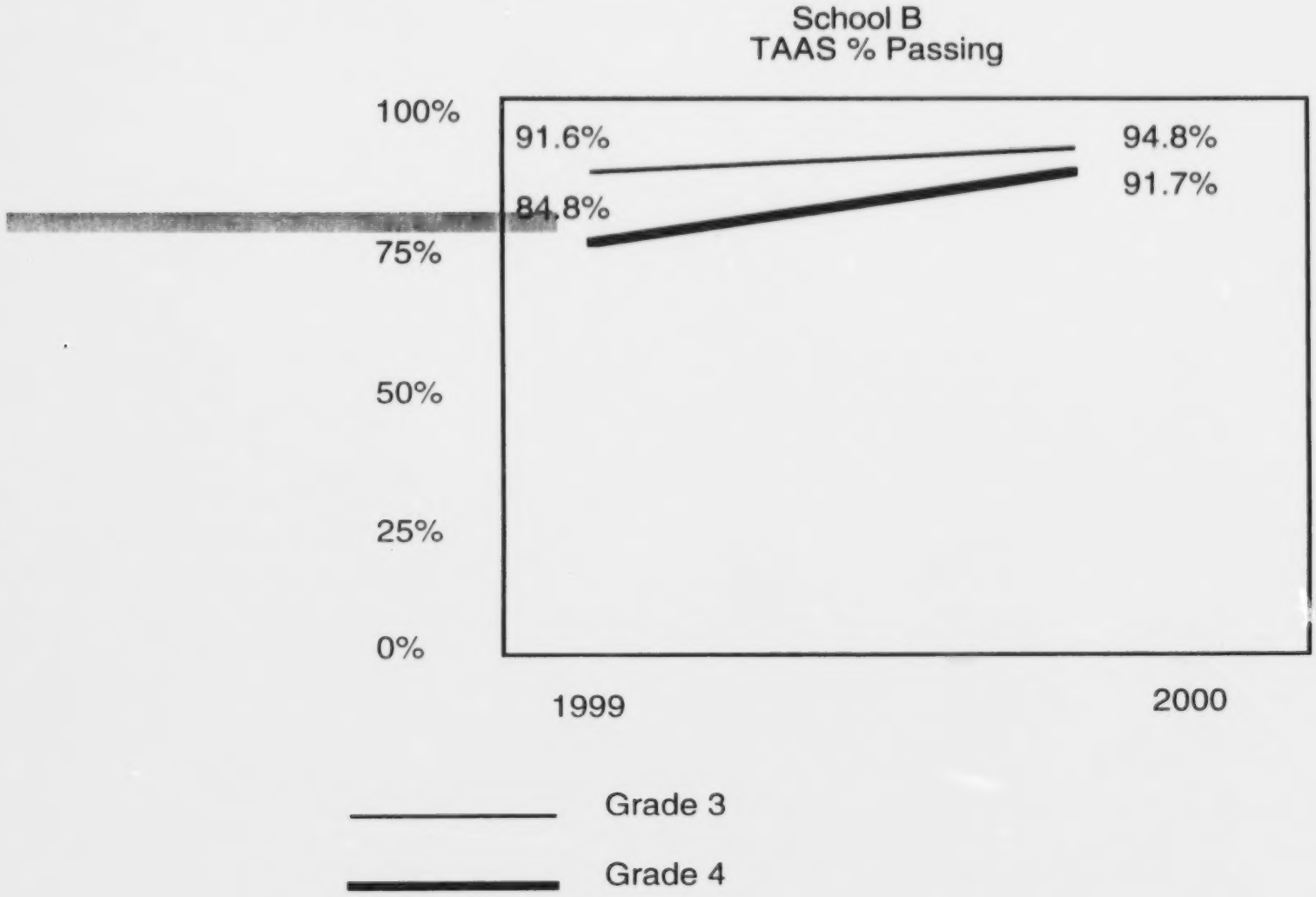

School C
Student Composition
100%
75%
50%
25%
0%
52.8%
58.3%
63.7%
36.6%
34.6%
30.3%
10.1%
6.8%
5.8%
1998
1999
2000
African American
Hispanic
White

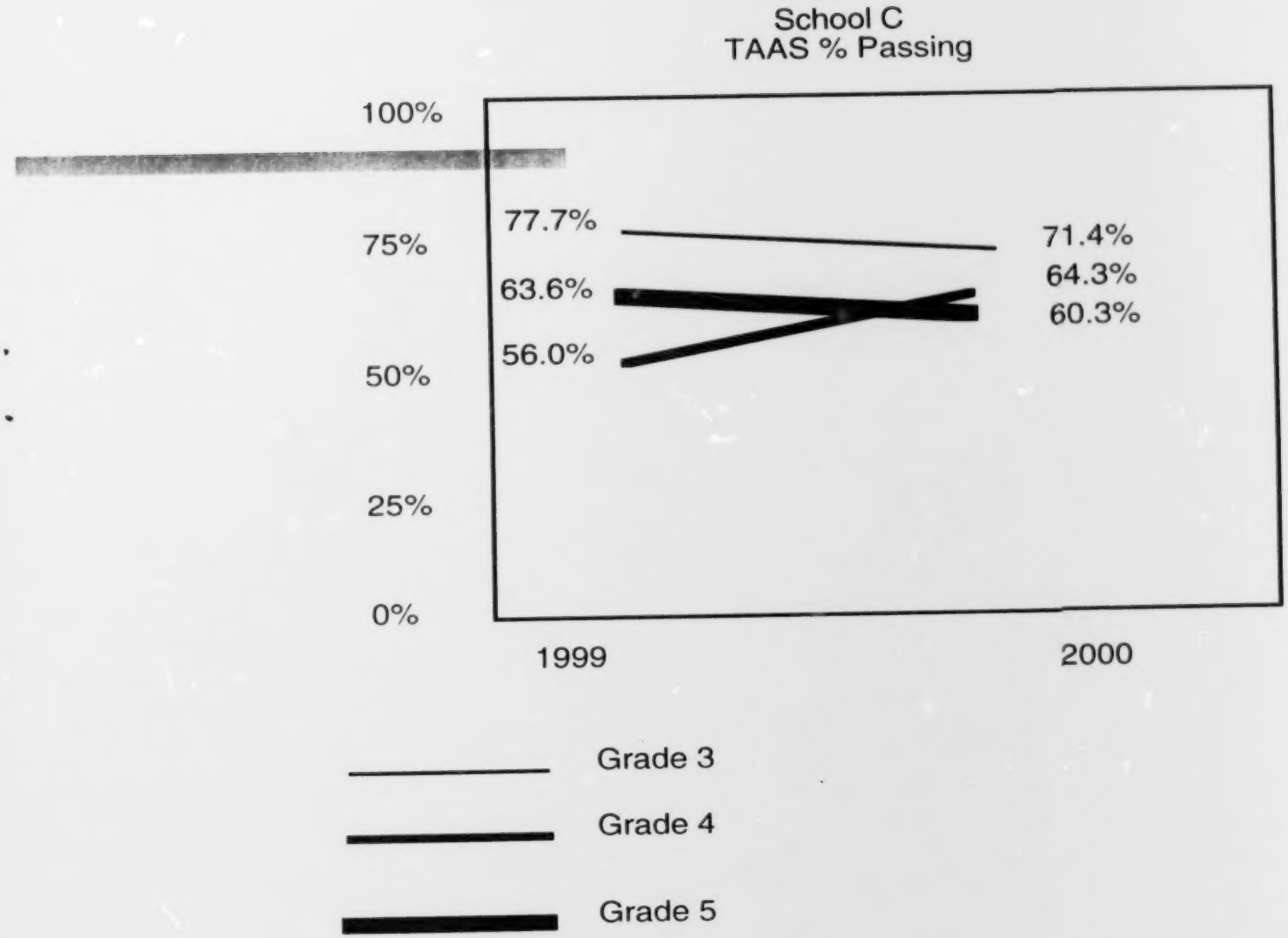

School A
Attendance Rates
100%
75%
50%
25%
0%
97.2%
97.6%
1999
2000


School B
Attendance Rates
100%
75%
50%
25%
0%
96.2%
97.0%
1999
2000


School C
Attendance Rates
100%
75%
50%
25%
0%
96.1%
96.2%
1999
2000


School A
TAAS % Passing
100%
75%
50%
25%
0%
90%
77.1%
76.7%
90.6%
87.0%
84.3%
1999
2000
Grade 3
Grade 4
Grade 5


School B
TAAS % Passing
100%
75%
50%
25%
0%
91.6%
84.8%
94.8%
91.7%
1999
2000
Grade 3
Grade 4


School C
TAAS % Passing
100%
75%
50%
25%
0%
77.7%
63.6%
56.0%
71.4%
64.3%
60.3%
1999
2000
Grade 3
Grade 4
Grade 5